

# *Project Baseline Summary Report*

Data Source: **EM CDB**  
Operations/Field Office: **Oak Ridge**  
Site Summary Level: **Oak Ridge Reservation**  
Project **OR-174 / EMWMF Privitization**

Report Number: **GEN-01b**  
Print Date: **3/9/2000**  
HQ ID: **0088**

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## **General Project Information**

### **Project Description Narratives**

#### **Purpose, Scope, and Technical Approach:**

**Purpose:** The Environmental Management Waste Management Facility (EMWMF) will be an on-site disposal cell for the disposal of CERCLA programs waste generated on the Oak Ridge Reservation. The disposal facility will be sized to be capable of receiving projected volumes from future environmental restoration (including decontamination and decommissioning) waste streams. It will be designed to meet DOE requirements as well as other applicable federal, state, and local regulations. The ready availability of an on-site facility is expected to aid in accelerating the remediation of projects. It will provide a definite and guaranteed disposal capability for wastes meeting the waste acceptance criteria.

**Scope:** The EMWM Facility project, to build a CERCLA mixed waste disposal facility for the Oak Ridge Reservation, is a split funded activity. This PBS element addresses the privatized activities; the relocation of the utilities and Above Grade Storage Facility currently within the footprint of the planned cells, the completion of the final detailed design of the EMWM Facility for an initial 400,000 cubic yard capacity configuration, with the design permitting expansion up to a 1,300,000 cubic yard capacity. This PBS also includes constructing a second cell, for a total capacity of 800,000 cubic yards. It includes the final capping of the Phase 1 cell. These activities will be privately funded, with all the capital costs except Phase 1 Final Capping amortized over the first year of operations of each cell using EM-37 funds. The Phase 1 Final Capping capital costs will be paid as a lump sum payment.

**Utilities Redistribution:** Relocate the 161KV overhead power line currently running through the EMWM Facility site. Install new utility poles and lines for the EMWM Facility, assist in the tie-in of the new line to the existing line, and disconnect and removal the abandoned line. The design for the utilities redistribution is included in this scope.

**Above Grade Storage Facility (AGSF) Relocation:** Relocate the AGSF, which includes the installation of concrete slabs at the new location of the AGSF, relocation of the existing buildings to the new site, the installation of access control fence around the facility, and the relocation of waste containers from the old facility to the new location. The design of the new AGSF is included in this scope.

**Facility Detailed Design, Phase 1 (Procurement 2):** Detailed scope is available in Section D, Parts 2.1.2 through 2.1.6 inclusive of the Procurement 2 RFP. The following is a summary of the detailed design deliverables:

The scope for this PBS is for the completion of the design for the EMWMF, a mixed waste disposal facility. The design will address two (2) configurations, a 400,000 cubic yard capacity and a 1,300,000 cubic yard capacity. Design deliverables will include the preparation and submittal of the Draft (60%) Design package, the Prefinal (90%) Design package, the Final (100%) Design package, and an "Issued for Construction" Design package. These design packages will be based on the Preliminary (30%) Design package submitted by the subcontractor in Procurement 1.

The Project Implementation Plan required as a deliverable in Procurement 1 will continue to be a living document and will be updated at each stage of the design process.

The subcontractor will provide support for one (1) meeting with the public/stakeholders to provide updated status, approach, and information. This

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meeting will be done at the design/construction interface. This support will include distribution of documents/handouts, posters or other visual aids, attendance at meetings, exchange of documents and other information with other DOE sites and contractors.

The completion of the detailed design package will be based on the Record of Decision (ROD) and the Remedial Action Work Plan (RAWP).

Construction, Phase 1 (Procurement 2): The detailed construction scope is available in Section D, Parts 2.2.1 through 2.2.3 inclusive and 2.3.1 through 2.3.5 inclusive of the Procurement 2 RFP. The following is a summary of the construction scope:

Provide onsite office facilities for subcontractor and Bechtel Jacobs personnel. Obtain all permits necessary for construction. Prepare site for construction including the clearing of land, grading, construction of access roads, and demolition of surplus/remnant facilities. Construct the base, provide storm water control/diversion systems and erosion control, dispose of all construction wastes/excess materials, and conduct preoperational testing. Provide facilities for equipment maintenance. Support Bechtel Jacobs and DOE during audits, inspections, public meetings. Upon completion of construction, perform a Readiness Review for Operations. After the completion of operations construct the final cap for the initial 400,000 cubic yard cell, remove the interim environmental monitoring systems and install permanent systems, demobilize at the site, and submit final reports as indicated.

The EMWM Facility will be constructed by the subcontractor in accordance with the "Issued for Construction" Design package such that it is ready to receive waste.

Final Cap - Phase 1: To install the cap for the Phase 1 EMWF cell, remove interim environmental monitoring systems, and install permanent monitoring systems. The scope of work for this WBS element includes:

Final grading of the disposed waste and completion of the documentation pertaining to the operation of the EMWMF.

Installation of a seven (7) layer cap over the waste consisting of: A 12" contour soil layer, a 24" vegetative soil layer, a 36" low permeability clay layer, a 12' drainage layer, a 36" biointrusion layer, a 12" graded gravel layer, a 60" vegetative soil/rock matrix.

Quality control testing by the construction subcontractor.

Design engineering oversight during construction of the final cap.

Remove interim environmental monitoring systems and install permanent environmental monitoring systems.

Scope not included in this element includes: Independent verification testing during the construction of the final cap; installation of final cap for second 400,000 cubic yard cell (Phase 2) or additional final cap for EMWM Facility capacity in excess of 800,000 cubic yards.

Facility Detailed Design, Phase 2 (Procurement 3): Assumed to be based on the 100% design of Facility Detailed Design, Phase 1 (Procurement 2), subject to modifications as dictated by DOE, TDEC, USEPA, and new design requirements.

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Construction, Procurement 3: Assumed to be essentially identical to Construction, Procurement 2 except for adjustments made for facilities and support services constructed for the Phase 1 cell and not required as part of Phase 2.

Technical Approach: The proposed cell for the EMWMF is envisioned as an earthen, above-grade disposal cell complete with leachate collection and monitoring systems and necessary supporting ancillary facilities. The first 400,00 cubic yard cell is expected to be operational in FY 2001. The ultimate total capacity of the cell is approximately 1.3 million cubic yards. The cell design will include a robust, multi-component cap that is designed to comply with the performance objectives of the Uranium Mill Tailings Reclamation Act. The location for the facility will be in an area having had previous disposal activities and already requiring future institutional controls.

CERCLA documentation has been or is being prepared for the construction of the EMWM Facility. To expedite its construction and operation, parallel efforts internal to Bechtel Jacobs Company LLC will be pursued to complete regulatory documentation and to procure services to design, construct, operate, and close the Phase 1 cell.

Subsequent to meeting prequalifications, up to three (3) subcontractors will be selected to develop their Preliminary (30%) Design, FEFA, and Project Implementation Plan. After review of these submissions, those contractors determined to be compliant with the contract and technical requirements will be permitted to bid on Procurement 2; the final detailed design, construction, operation, and final closure of the EMWMF Phase 1 cell. The Procurement 2 award will be a Firm-Fixed-Price contract. The procurement for the Phase 2 cell, a 400,000 cubic yard extension of the Phase 1 cell, will be timed so that the cell is constructed and ready for waste receipt at the time the Phase 1 cell is filled to capacity.

The EMWM Facility will be a partially privatized project. Appropriated funds (Defense Post-2006 completion) will be used for all Phase 1 project activities except for the utilities redistribution, the relocation of the Above Grade Storage Facility, the completion of final detailed design, construction, and final capping. The winning Phase 1 subcontractor will privately finance these activities. The privatized costs, except the final capping, will be amortized during the first year of operations of the Phase 1 cell. The costs of the final cap for Phase 1 will be a lump sum payment during the year following final capping. Appropriated funds will be used for all Phase 2 project activities unless it is determined also to privatize Phase 2. If Phase 2 is privatized, the completion of final detailed design and construction will be privately financed by the winning Phase 2 subcontractor and the costs will be amortized during the first year of operations of the Phase 2 cell. For the purposes of this PBS, it has been assumed Phase 2 will be privatized.

### **Project Status in FY 2006:**

The EMWMF Phase 1 cell will be operational and receiving waste in FY 2006. Phase 1 Construction activities will have been completed in prior years.

### **Post-2006 Project Scope:**

The EMWMF Phase 1 cell will continue operations, dependent upon the scope, schedule, and waste generation of individual remediation projects, for an estimated life of 10 years from initial startup. The Phase 1 cell will operate through February 2011. The final cap for the Phase 1 cell is privatized and covered in this pbs. Beginning in January 2008, the RFP for the design and construction of the Phase 2 cell will begin, with contract award in March 2009. Design and construction will be privatized. Phase 2 cell operations will commence in March 2011. Upon closure of the Phase 2 cell, it will be capped under this PBS OR-171, Environmental Management Waste Management Facility. The facility will then be maintained under

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perpetual care and institutional control through PBS OR-241-Y-12 Surveillance & Maintenance.

### **Project End State**

Project completion will result in the design and construction of a readily available disposal facility for the permanent disposal of many CERCLA generated wastes streams on the ORR, including D&D wastes. It will allow remediation projects to more easily plan with the availability of a disposal location. Upon closure in 2015, the facility will remain under institutional control indefinitely in an area already requiring such controls.

### **Cost Baseline Comments:**

The DOE EM Life Cycle Baseline that was recently issued in draft form from Bechtel Jacobs Company to DOE-ORO is the cost basis for the PBS. Following development of scope statements, several methods were used for creating the cost estimates in the Life Cycle Baseline: use of cost estimating models, use of existing estimates, use of unit-price estimates, and extrapolation estimates. The estimate for the EMWMF used an existing estimate based on the detailed Feasibility Study estimates. The estimate was reviewed for accuracy and modified as required to adequately qualify the line-item cost data. The estimate was reviewed for errors, omissions, and consistency in approach across the DOE-ORO EM Program. No overhead has been applied in this cost baseline since the capital construction costs will be amortized using EM-37 funds. Overhead will be funded by Defense Post-2006 completion funds during the periods of amortization and is part of the PBS OR-171 cost baseline.

### **Safety & Health Hazards:**

The overall scope of this project (PBS OR-171-Environmental Management Waste Management Facility and PBS OR-174-EMWMF Privatization) addresses the procurement and privatized design and construction of an above-grade, earthen disposal cell for remediation generated CERCLA waste on the ORR. The primary S&H hazards for the project involve those associated with construction of the cell. However, additional hazards may be encountered during the construction of this facility, depending on the location of the selected site for the disposal cell. For example, radiological and chemical hazards in soil, surface water, and groundwater may be present at the site from previous operations in the area. In addition, depending on the results of geological investigations at the proposed site, preliminary construction activities may include removal of waste from or other breaching of a capped RCRA disposal area. Any breaching of this RCRA disposal area would introduce hazards associated with hazardous waste operations and invoke corresponding requirements. All S&H hazards and mitigating requirements will be identified in the procurement, design, and construction documentation for the project. The Statement of Work (SOW) and associated Request for Proposals (RFP) will identify the regulatory requirements with which the design and construction of the disposal facility shall comply, possibly including but not limited to S/RIDs, regulations, standards, DOE Orders, etc. and describe known hazards and conditions at the selected site. The construction work plan and accompanying documents (e.g., permits, procedures, and health and safety plans) developed by the vendor will identify all potential hazards and mitigating requirements for construction of the facility at the selected site.

### **Safety & Health Work Performance:**

S&H resources will be required during each phase of the project. During the procurement phase, S&H input will be required to define S&H requirements for the SOW and RFP. S&H will be a key member during the review of bids and vendors. A verified environmental and S&H compliance record will be a key consideration in the award of the contract. During the design phase, S&H input will be required to ensure adequate consideration of safety and environmental concerns for the proposed cell design, construction, and operation. During the construction phase, required S&H resource requirements will include, but are not limited to, work plan and health and safety plan development, definition of S&H requirements,

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identification of hazards and controls, development of all safety documentation (e.g., excavation/penetration permits, safety work permits, and radiological work permits) and work procedures, training of personnel, readiness reviews, and oversight of construction activities.

### PBS Comments:

### Baseline Validation Narrative:

The Oak Ridge Operations Office Environmental Management Life Cycle Baseline (LCB) was submitted by the Managing and Integrating Contractor, Bechtel Jacobs Company LLC, to DOE-ORO on April 1, 1999. The final draft LCB will be submitted to DOE-ORO on June 1, 1999 after formal receipt and incorporation of comments (due) on May 1, 1999. A validation of the baseline is in process using an independent contractor to DOE-ORO. The validation will be ongoing until complete and the final validation report is scheduled to be issued on June 25, 1999.

## General PBS Information

**Project Validated?** **Date Validated:**  
**Has Headquarters reviewed and approved project?** No  
**Date Project was Added:** 3/10/1999  
**Baseline Submission Date:** 7/1/1999  
**FEDPLAN Project?** No

Drivers:	CERCLA	RCRA	DNFSB	AEA	UMTRCA	State	DOE Orders	Other
	Y	Y	Y	Y	N	Y	Y	N

## Project Identification Information

**DOE Project Manager:** Dave Adler  
**DOE Project Manager Phone Number:** 423-574-4094  
**DOE Project Manager Fax Number:** 423-576-5333  
**DOE Project Manager e-mail address:** adlerdg@oro.doe.gov  
**Is this a High Visibility Project (Y/N):**

## Planning Section

### Baseline Costs (in thousands of dollars)

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	1997-2006 Total	2007-2070 Total	1997-2070 Total		1997	Actual 1997	1998	Actual 1998	1999	2000	2001	2002	2003	2004	2005	2006
PBS Baseline (current year dollars)	25,972	28,089	54,061							18,920	7,052	0	0	0	0	0
PBS Baseline (constant 1999 dollars)	25,296	21,940	47,236							18,531	6,765	0	0	0	0	0
PBS EM Baseline (current year dollars)	25,972	28,089	54,061							18,920	7,052	0	0	0	0	0
PBS EM Baseline (constant 1999 dollars)	25,296	21,940	47,236							18,531	6,765	0	0	0	0	0
	2007	2008	2009	2010	2011- 2015	2016- 2020	2021- 2025	2026- 2030	2031- 2035	2036- 2040	2041- 2045	2046- 2050	2051- 2055	2056- 2060	2061- 2065	2066- 2070
PBS Baseline (current year dollars)	0	0	3,524	14,764	9,801	0	0	0	0	0	0	0	0	0	0	0
PBS Baseline (constant 1999 dollars)	0	0	2,863	11,747	7,330	0	0	0	0	0	0	0	0	0	0	0
PBS EM Baseline (current year dollars)	0	0	3,524	14,764	9,801	0	0	0	0	0	0	0	0	0	0	0
PBS EM Baseline (constant 1999 dollars)	0	0	2,863	11,747	7,330	0	0	0	0	0	0	0	0	0	0	0

## Baseline Escalation Rates

1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
			2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%
2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	2056-2060	2061-2065	2066-2070

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2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	2056-2060	2061-2065	2066-2070
2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%

## Project Reconciliation

### Project Completion Date Changes:

Previously Projected End Date of Project:

Current Projected End Date of Project: 9/30/2011

Explanation of Project Completion Date Difference (if applicable):

### Project Cost Estimates (in thousands of dollars)

Previously Estimated Lifecycle Cost (1997 - 2070, 1998 Dollars):

Actual 1997 Cost:

Actual 1998 Cost:

Previously Estimated Lifecycle Cost of Project (1999 - 2070, 1998 Dollars):

0

Inflation Adjustment (2.7% to convert 1998 to 1999 dollars):

0

Previously Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):

0

### Project Cost Changes

Cost Adjustments    Reconciliation Narratives

Cost Change Due to Scope Deletions (-):

Cost Reductions Due to Efficiencies (-):

Cost Associated with New Scope (+):

Cost Growth Associated with Scope Previously Reported (+):

Cost Reductions Due to Science & Technology Efficiencies (-):

Subtotal:

0

Additional Amount to Reconcile (+):

47,236

Current Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):

47,236

## Milestones

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Milestone/Activity	Field Milestone Code	Original Date	Baseline Date	Legal Date	Forecast Date	Actual Date	EA	DNFSB	Mgmt. Commit.	Key Decision	Intersite
EMWMF Privatization - PBS START DATE	OR174-001		10/1/1996								
EMWMF Privatization - PBS END DATE	OR174-002		9/30/2011								
EMWMF Privitization Mission Completion	OR174-003		9/30/2011								

## Milestones - Part II

Milestone/Activity	Field Milestone Code	Critical Decision	Critical Closure Path	Project Start	Project End	Mission Complete	Tech Risk	Work Scope Risk	Intersite Risk	Cancelled	Milestone Description
EMWMF Privatization - PBS START DATE	OR174-001			Y							Start Date for the EMWMF Privitization PBS
EMWMF Privatization - PBS END DATE	OR174-002				Y						End Date for the EMWMF Privitization PBS
EMWMF Privitization Mission Completion	OR174-003					Y					